



**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of

Liya Regel, et al

A METHOD FOR  
MANUFACTURING DIAMOND  
COATINGS

Serial No. 10/722,309

Filed 25 November 2003

Group Art Unit:

Examiner:

I hereby certify that this correspondence is being deposited today with the United States Postal Service as first class mail in an envelope addressed to Commissioner For Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

*Robin G. Reeves*  
Robin G. Reeves

*2/3/04*  
Date

Commissioner for Patents  
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Sir:

**INFORMATION DISCLOSURE STATEMENT FOR CONSIDERATION**  
**BY THE OFFICE UNDER 37 C.F.R. 1.97-1.99**

Enclosed herewith are patents and/or publications for consideration by the Patent and Trademark Office in regard to the invention claimed in the above-described application. In compliance with §1.56, such documents are listed in the enclosed Form PTO-1449.

Applicants request that the Patent and Trademark Office make of record the above-identified documents. A full text copy of each document is attached, except for copies of U.S. patents and U.S. patent application publications. For documents not in English, an English translation or an equivalent English language patent or publication may be attached. Where a translation is not available, a concise explanation of the relevance of each document not in English is included either here or in the specification.

This Information Disclosure Statement (hereinafter "Statement") is submitted according to the following selected paragraph:

- I. ☒ This Statement is being filed under §1.97(b) within three months of the filing date of the application (other than a CPA), or before the mailing of a first Office action on the merits or before the mailing of a first Office action after the filing of a request for continued examination.
- II. ☐ This Statement is being filed under §1.97(c), with fee, **prior** to the mailing date of any of a final action, a notice of allowance or an action that otherwise closes prosecution in the application. Please charge the fee required by §1.17(p) to Eastman Kodak Company Deposit Order Account Number 05-0225. A duplicate copy of this Certification is enclosed.

III. ☐ This Statement is being filed under §1.97(c), with a certification under, §1.97(e) **prior** to the mailing date of any of a final action, a notice of allowance or an action that otherwise closes prosecution in the application. The undersigned hereby states that (check one):

☐ each item of information contained in this Statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Statement.

☐ no item of information in this Statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing this certification under §1.97(e) after making reasonable inquiry, no item of information contained in this Statement was known to any individual designated in §1.56(c) more than three months prior to the filing of this Statement.

IV. ☐ This Statement is being filed under §1.97(d), with fee and certification under §1.97(e), on or after the mailing date of either a final action, a notice of allowance (but prior to payment of the issue fee) or an action that otherwise closes prosecution in the application. Please charge the fee required by §1.17(p) to Eastman Kodak Company Deposit Order Account No. 05-0225. A duplicate copy of this Certification is enclosed. The undersigned hereby states that (check one):

☐ each item of information in this Statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Statement.

☐ no item of information in this Statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing this certification under §1.97(e) after making reasonable inquiry, no item of information contained in this Statement was known to any individual designated in §1.56(c) more than three months prior to the filing of this Statement.

Respectfully submitted,



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Enclosures



FORM PTO-1449

US DEPARTMENT OF COMMERCE  
PATENT AND TRADEMARK OFFICE

Atty. Docket No.

86655SHS

Serial No.

10/722,309

Customer No. 01333

Applicant:

Liya Regel, et al

If AFTER the later date of the first Office Action or 3 months from filing, use only with Rule 97(E) Certificate or Fee

## LIST OF ART CITED BY APPLICANT

(Use several sheets if necessary)

Filing Date

25 November 2003

Group

## U.S. PATENT DOCUMENTS

Examiner Initial*	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	US 2003/0173895 A1	09-18-2003	Yoshifumi Kato et al.	313	504	01-30-2003
	5,920,080	07-06-1999	Gary W. Jones	257	40	05-08-1998
	6,198,218	03-06-2001	Koji Kobashi et al.	313	504	12-18-1998
	6,525,335	02-25-2003	Michael R. Krames et al.	257	13	11-06-2000
	6,560,398	05-06-2003	William R. Roach et al.	385	147	10-19-2000
	6,608,449	08-19-2003	Takeshi Fukanaga	315	169.3	05-08-2001

## FOREIGN PATENT DOCUMENTS

Examiner Initial*	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES   NO
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## OTHER ART (Including Author, Title, Date, Pertinent Pages, Etc.)

✓	A. Gicquel, K. Hassouni, F. Silva and J. Achard, "CVD diamond films: from growth to applications," <i>Current Applied Physics</i> 1 (2001), pp. 479-496.
	"Diamond Films" Recent Developments," Volume 23, No. 9 of the MRS Bulletin (September 1998), Materials Research Society, Warrendale, Pennsylvania.
✓	L.L. Regel and W.R. Wilcox, "Diamond film deposition by chemical vapor transport," <i>Acta Astronautica</i> 48 (2001), pp. 129-144.
✓	W.L. Wang, K.J. Liao, R.Q. Zhang and C.Y. Kong, "Investigation of organic light emitting devices using boron-doped diamond electrodes," <i>Materials Science and Engineering B85</i> (2001), pp. 169-171.
✓	M.J. Ulczynski, B. Wright and D.K. Reinhard, "Diamond-coated glass substrates," <i>Diamond and Related Materials</i> 7 (1998), pp. 1639-1646.
•	J. Stiegler, A. Bergmaier, J. Michler, Y. von Kaenel, G. Dollinger, E. Blank, "Impurity and defect incorporation in diamond films deposited at low substrate temperatures," <i>Diamond and Related Materials</i> 7 (1998), pp. 193-199.
✓	C. Jinsheng, W. Xuejun, Z. Zhihao and Y. Fengyuan, "Nucleation and growth of diamond on silicon substrate coated with polymer," <i>Thin Solid Films</i> 346 (1999), pp. 120-124.
•	Z. Sun, X. Shi, X. Wang, B.K. Tay, H. Yang and Y. Sun, "Morphological features of diamond films depending on substrate temperatures via a low pressure polymer precursor process in a hot filament reactor," <i>Diamond and Related Materials</i> 7 (1998), pp. 939-943.
✓	V.J. Trava-Airoldi, B.N. Nobrega, E.J. Corat, E. del Bosco, N.F. Leiter and V. Baranauskas, "Low temperature chemical vapour deposition of diamond on tungsten carbides using CF <sub>4</sub> gas doping for machine tool applications," <i>Vacuum</i> 46 (1995) 5-8.
✓	L. Dong, B. Ma and G. Dong, "Diamond deposition at low temperature by using CH <sub>4</sub> /H <sub>2</sub> gas mixture," <i>Diamond and Related Materials</i> 11 (2002), pp. 1697-1702.
✓	J. Petherbridge, P.W. May, S.R.J. Pearce, K.N. Rosser and M.N. Ashfold, "Molecular beam mass spectrometry investigations of low temperature diamond growth using CO <sub>2</sub> /CH <sub>4</sub> plasmas," <i>Diamond and Related Materials</i> 10 (2001), pp. 393-398.
✓	I. Schmidt and C. Benndorf, "Low temperature CVD materials: AlZn and glass," <i>Diamond and Related Materials</i> 10 (2001), pp. 347-351.

	A. Li Tolt, L. Heatherly, R.E. Clausen, R.W. Shaw and C.S. Feigler, "HFCD of diamond at low substrate and low filament temperatures," pp. 303-311 in <i>Electrochemical Society Proceedings Volume 95-4, Proceedings of the Fourth International Symposium on Diamond Materials</i> , edited by K.V. Ravi and J.P. Dismukes, The Electrochemical Society, Pennington, NJ (1995).
	A. Hatta and A. Hiraki, "Low temperature chemical vapor deposition," pp. 887-899, in <i>Handbook of Industrial Diamonds and Diamond Films</i> , edited by M.A. Prelas, G. Popovici and L.K. Bigelow, Marcel Dekker, NY (1998).
	J.G. Buijnster, P. Shankar, W.J.P. van Enkevort, J.J. Schermer and J.J. ter Meulen, "The effect of nitriding on the diamond film characteristics on chromium substrates," <i>Diamond and Related Materials</i> 11 (2002), pp. 1760-1768.
	B.V. Spitsyn, "The state of the art in studies of diamond synthesis from the gaseous phase and some unsolved problems," in <i>Applications of Diamond Films and Related Materials</i> , edited by Y. Tzeng, M. Yoshikawa, M. Murakami and A. Feldman. Elsevier, Amsterdam (1991).
	B.V. Spitsyn, "Crystallization of diamond by the chemical transport reaction: thermodynamics and kinetics," pp. 61-72, in <i>Electrochemical Society Proceedings Volume 95-4, Proceedings of the Fourth International Symposium on Diamond Materials</i> , edited by K.V. Ravi and J.P. Dismukes, The Electrochemical Society, Pennington, NJ (1995).
	L.L. Regel, T. Takagi and W.R. Wilcox, "Centrifugal diamond film processing," pp. 221-227, in <i>Centrifugal Materials Processing</i> , edited by L.L. Regel and W.R. Wilcox, Plenum Press, NY (1997).
	H.K. Woo, C.S. Lee, I. Bello, St. T. Lee, K.W. Wong and N.B. Wong, "Oriented diamond growth on silicon (111) using a solid carbon source," <i>J. Applied Physics</i> 83 (1998), pp. 4187-4192.
	S.D. Shin, N.M. Hwang and D.Y. Kim, "High rate of diamond deposition through graphite etching in a hot filament CVD reactor," <i>Diamond and Related Materials</i> 11 (2002), pp. 1337-1343.
	L.L. Regel and W.R. Wilcox, "Selective patterned deposition of diamond using a new technique," <i>J. Mat. Sci. Lettr.</i> 18 (1999), pp. 427-430.
	Y. Takagi, L.L. Regel and W.R. Wilcox, "New method for diamond film deposition under different gravity conditions," <i>Trans. Mat. Res. Soc. Japan</i> 24 (1999), pp. 513-518.
	L.L. Regel and W.R. Wilcox, "Deposition of diamond on graphite and carbon felt from graphite heated in hydrogen at low pressure," <i>J. Mat. Sci. Lettr.</i> 19 (2000), pp. 455-457.

EXAMINER	DATE CONSIDERED
<p>*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.</p>	

